

This resource assessment is designed to gather and display information specific to Beaver County, Utah. This report will highlight the natural and social resources present in the county, detail specific concerns, and be used to aid in resource planning and target conservation assistance needs. This document is dynamic and will be updated as additional information is available through a multi-agency partnership effort. The general observations and summaries are listed first, followed by the specific resource inventories.

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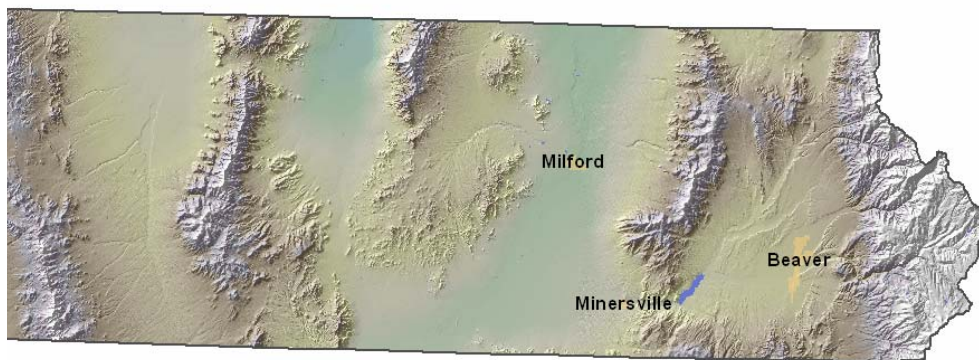
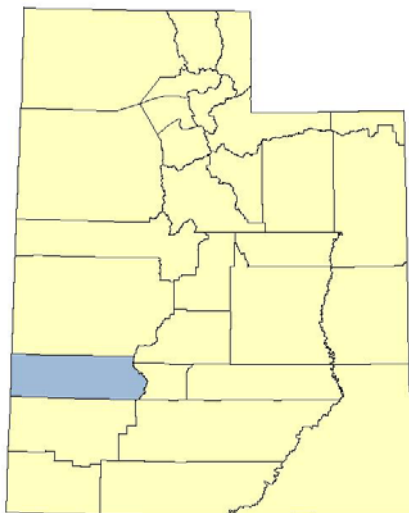
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Introduction

Beaver County is comprised of approximately 1,657,600 acres on Southwestern Utah. Beaver County is approximately ninety-two percent public land or urban lands. Most Federal Public Land is administered by the United States Forest Service (USFS) and Bureau of Land Management (BLM). Much of the State Land is administered by the School and Institutional Trust Lands Administration (SITLA) and Utah Division of Wildlife Resources (DWR).

Major land uses in the county include grazing on rangelands, alfalfa, and grass hay, corn and small grains crops production, hog production facilities, forest production, and industrial and urban areas. Recreational uses are also common activities both on private and public lands.

Equal Opportunity Providers and Employers.



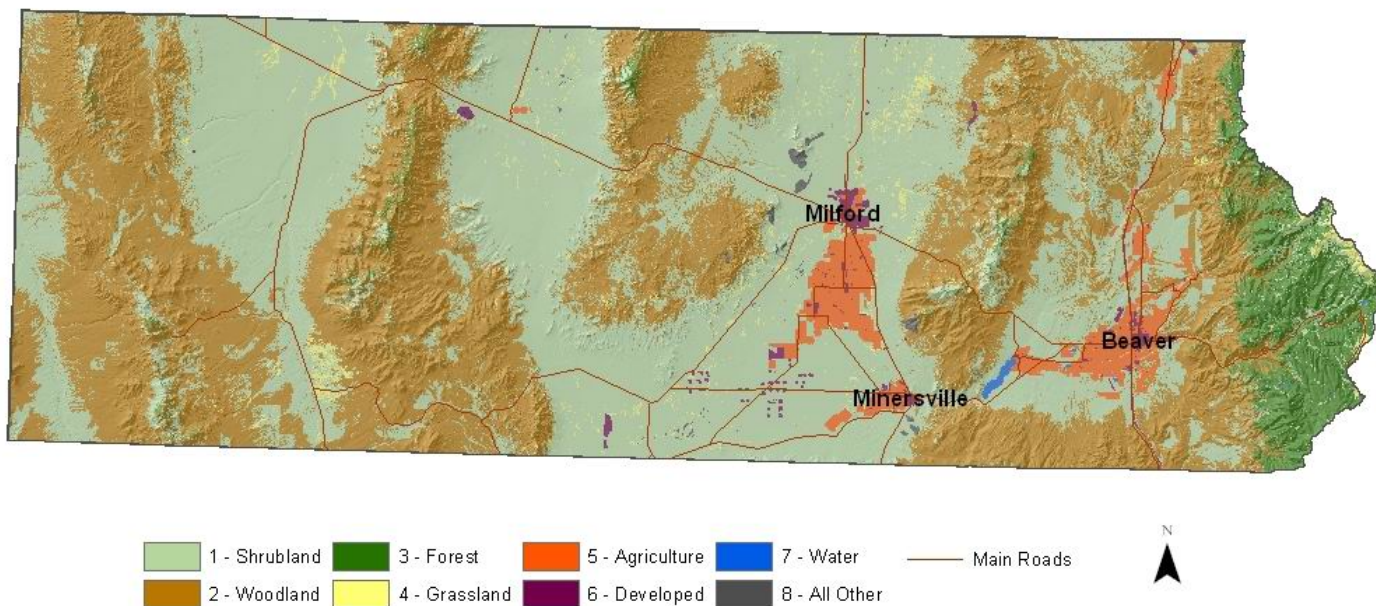
General Land Use Observations

Farming operations are abundant in the Beaver and Milford valleys where suitable water, productive soils and adequate growing season are found. There is 1 farming operation in the Wah Wah valley. This farm uses a spring to supply water to the farming operation. Rangelands and pastures are prominent land uses where water, soils and growing season are not suitable for cropland. There is some limited lumber production in portions in the higher elevations. Hog production facilities are an important land use in the Milford Valley. Urban and Industrial areas are important land uses.

Resource Assessment Summary

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	Medium	Wind Erosion on soil is a concern for much of the lower elevation valley bottoms across the county. Water Soil Erosion on banks of Beaver River is also a concern.
Water Quantity	High	Insufficient amounts of available water from surface supplies and aquifers. Aquifers in Milford Valley have dropped as much as 40 feet in 50 years.
Water Quality Ground Water	High	This is a concern in the Milford Valley due to the large Hog facility there.
Water Quality Surface Water	High	Some of the tributaries as well as the Beaver River are impaired by nonpoint source pollutants. Some pollutants exceed the numeric criteria established by state standard, for the designated water use, by an average of 70 to 80 percent.
Air Quality	Medium	Wind Soil Erosion and odor issues can occasionally be problems within the county. These situations are usually related to local climatic conditions.
Plant Suitability	Low	
Plant Condition	Low	
Fish and Wildlife	Medium	Local concerns for Big Game populations as well as regulatory restrictions due to Threatened and Endangered Species Laws.
Domestic Animals	Low	
Social and Economic	Low	Ability to maintain a rural lifestyle.

Land Cover

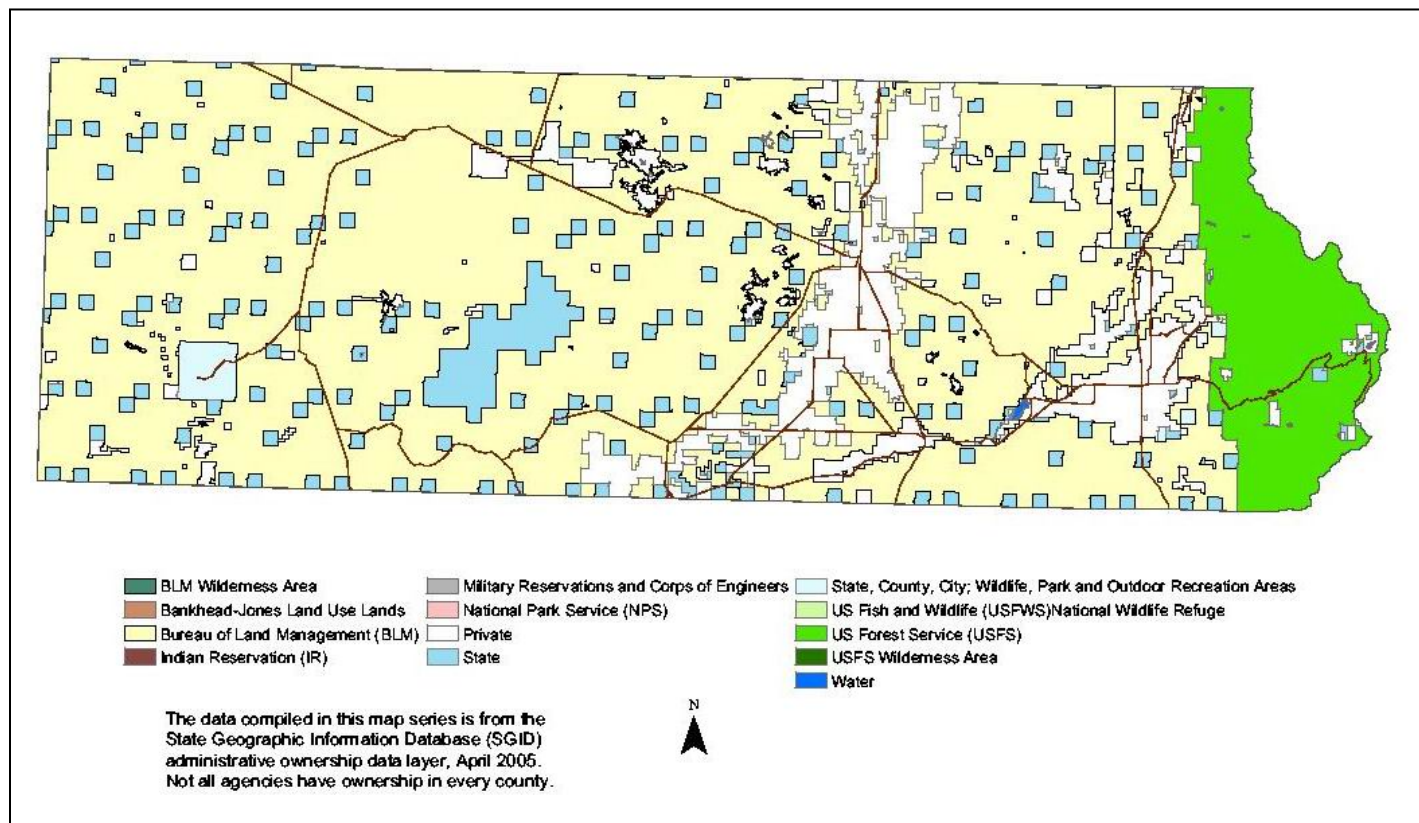


Land Cover/Land Use		
	Acres	%
Forest/Rangelands	1,574,720	95%
Grass/Pasture/Haylands	46,463	3%
Water/Wetlands	16,576	1%
Urban/Developed	16,576	1%
Beaver County Totals *b	1,654,335	100%
<i>*a: Estimate from Farm Service Agency records and include CRP/CREP. *b: Totals may not add due to rounding and small unknown acreages.</i>		

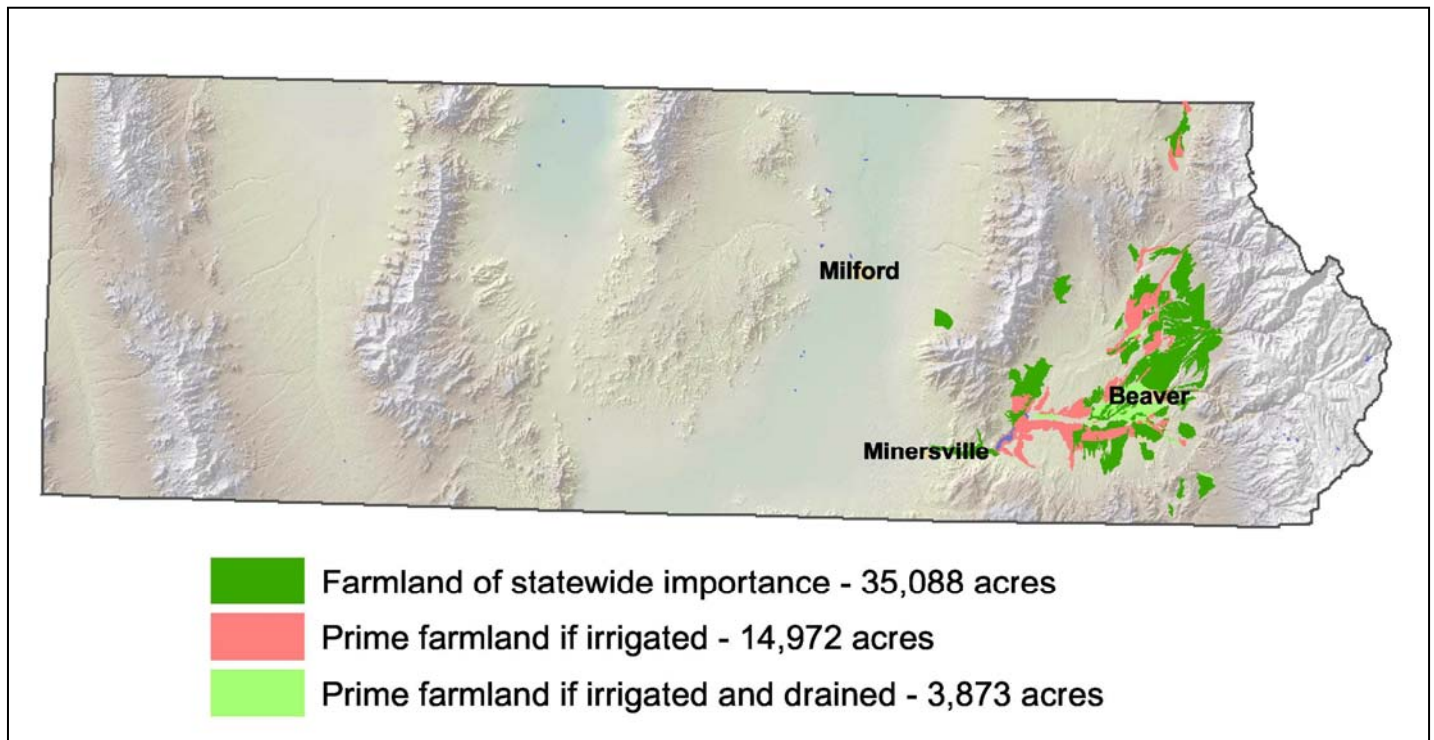
Special Considerations for Beaver County:

- Most of the forestland is found on federal USFS and BLM lands.
- Much of the Rangeland is found on federal USFS and BLM lands.
- Grass/Pasture/Hay includes approximately 7000 acres of grass pasture and/or grass hay in the Beaver area.
- Shrub/rangelands consist of oak savannahs, Juniper /Pinion Pine and other open areas.
- Less than one percent of the county consists of urban land uses.

Ownership



Prime & Unique Farm Land



Prime farmland

Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

Unique farmland

Land other than prime farmland that is used for the production of specific high-value food and fiber crops...such as, citrus, tree nuts, olives, cranberries, fruits, and vegetables

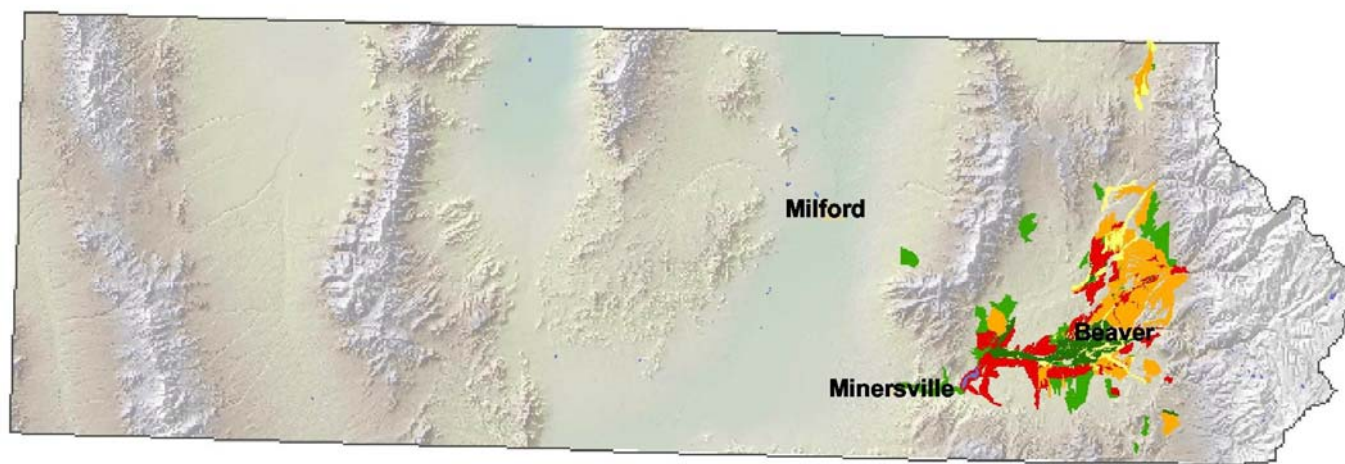
Additional farmland of statewide or local importance

Land identified by state or local agencies for agricultural use, but not of national significance.

Resource Concerns – SOILS

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Soil Erosion	Sheet and Rill	x	x		x	x			x							
	Wind	x	x		x				x						x	
	Ephemeral Gully	x														
	Classic Gully				x	x	x		x						x	
	Streambank			x	x	x	x	x	x	x		x	x			
	Shoreline															
	Irrigation-induced	x	x	x												
	Mass Movement															
	Road, roadsides and Construction Sites										x	x			x	
Soil Condition	Organic Matter Depletion	x	x												x	
	Rangeland Site Stability			x	x	x	x	x								
	Compaction	x	x	x												
	Subsidence															
	ContaminantsSalts and Other Chemicals										x	x			x	
	Contaminants: Animal Waste and Other OrganicsN															
	Contaminants: Animal Waste and Other OrganicsP								x					x		
	Contaminants: Animal Waste and Other OrganicsK															
	Contaminants : Commercial FertilizerN															
	Contaminants : Commercial FertilizerP								x					x		
	Contaminants : Commercial FertilizerK															
	ContaminantsResidual Pesticides															
	Damage from Sediment Deposition			x	x		x	x	x			x	x	x		x

Land Capability Class on Cropland and Pastureland

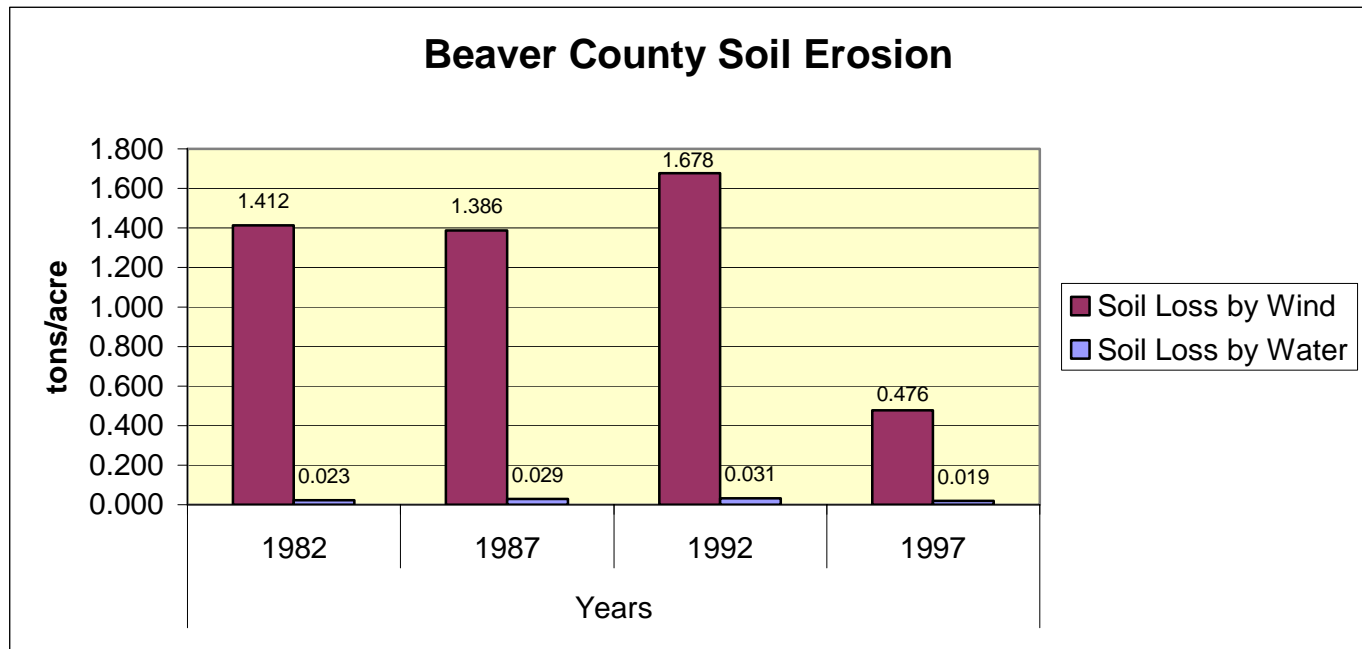


Land Capability Class



		Acres	Percentage
Land Capability Class (Irrigated Cropland & Pastureland Only)	I - slight limitations	0	0%
	II - moderate limitations	5,321	12%
	III - severe limitations	19,758	45%
	IV - very severe limitations	13,173	30%
	V - no erosion hazard, but other limitations	5,985	14%
	VI - severe limitations, unsuited for cultivation, limited to pasture, range, forest	0	0%
	VII - very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	0	0%
	VIII - misc areas have limitations, limited to recreation, wildlife, and water supply	0	0%

Soil Erosion

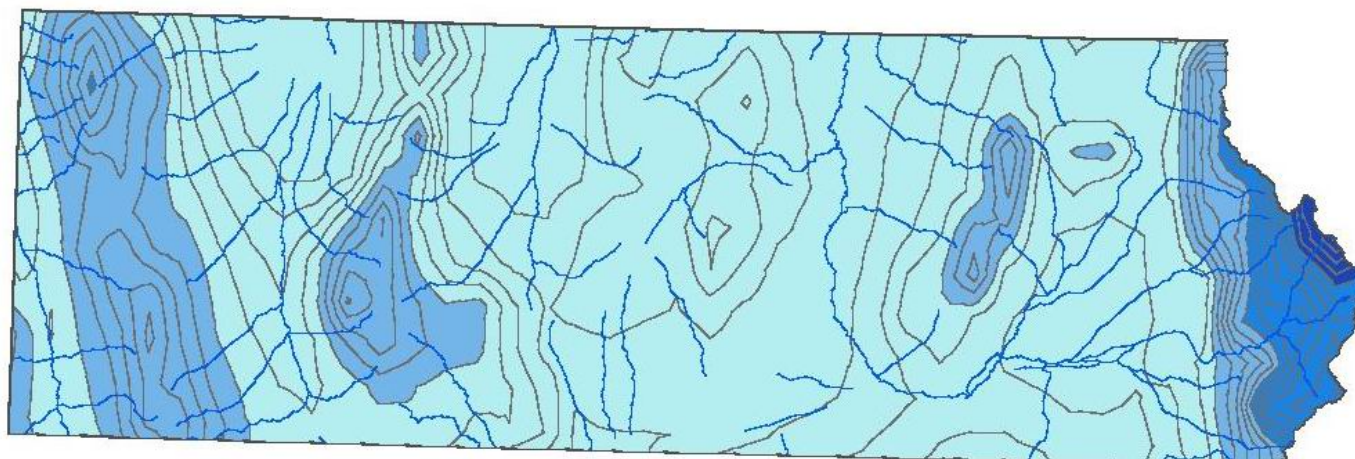


- ❖ Sheet and rill erosion by water on the subbasin croplands and pasturelands have been reduced by more than 50 thousand tons of soil per year from 1982 to 1997.
- ❖ NRI estimates indicate 1,400 acres of the subbasin agricultural lands still had water erosion rates above a sustainable level in 1997.
- ❖ Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the nation's waters.
- ❖ Through NRCS programs many farmers and ranchers have applied conservation practices to reduce the effects of erosion by water. As a result, erosion rates on croplands and pasturelands fell 40 percent from 1.6 to 0.9 tons/acre/year from 1982 to 1997.

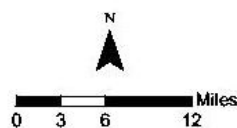
Resource Concerns – WATER

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Water Quantity	Water Quantity – Rangeland Hydrologic Cycle			X	X	X	X	X	X	X						XX
	Excessive Seepage			X			X									
	Excessive Runoff, Flooding, or Ponding			X			X									
	Excessive Subsurface Water			X			X									
	Drifted Snow															
	Inadequate Outlets															
	Inefficient Water Use on Irrigated Land	X	X	X			X									
	Inefficient Water Use on Non-irrigated Land				X	X		X								X
	Reduced Capacity of Conveyances by Sediment Deposition								X					X		
	Reduced Storage of Water Bodies by Sediment Accumulation								X					X		
	Aquifer Overdraft	X	X													
	Insufficient Flows in Watercourses	X	X	X	X	X	X	X	X	X		X		X		X
Water Quality, Groundwater	Harmful Levels of Pesticides in Groundwater															
	Excessive Nutrients and Organics in Groundwater															
	Excessive Salinity in Groundwater															
	Harmful Levels of Heavy Metals in Groundwater															
	Harmful Levels of Pathogens in Groundwater	X	X								X					
	Harmful Levels of Petroleum in Groundwater															
Water Quality, Surface	Harmful Levels of Pesticides in Surface Water															
	Excessive Nutrients and Organics in Surface Water	X	X	X	X	X	X	X	X		X	X				
	Excessive Suspended Sediment and Turbidity in Surface Water	X	X	X	X	X	X	X	X	X	X	X	X		X	X
	Excessive Salinity in Surface Water															
	Water Quality – Colorado River Excessive Salinity															
	Harmful Levels of Heavy Metals in Surface Water															
	Harmful Temperatures of Surface Water													X		
	Harmful Levels of Pathogens in Surface Water	X	X	X												
	Harmful Levels of Petroleum in Surface Water															

Precipitation and Streams



Annual Precipitation (in/yr)



		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights	Surface	26715.00	
	Well	19748.00	
	Total Irrigated Adjudicated Water Rights	46463.00	0.00
Stream Flow Data	USGS 10234500 Beaver River near Beaver	April-July Yield	27,000
		MILES	PERCENT
Stream Data	Total Miles - Major (100K Hydro GIS Layer)	242.20	n/a
	303d (DEQ Water Quality Limited Streams)	203.80	84%

		Irrigation Efficiency:	<40%	40 - 60%	>60%
Percentage of Total Acreage	Cropland		12%	32%	56%
	Pastureland		77%	13%	10%

Watersheds & Total Maximum Daily Load (TMDL)

Watershed Projects, Plans, Studies and Assessments			
NRCS Watershed Projects		NRCS Watershed Plans, Studies & Assessments	
Name	Status	Name	Status
Beaver River Watershed Plan	Ongoing	Beaver River Watershed	Completed 2001
West Beaver Watershed Plan	In Plannig	West Beaver Watershed Plan	In Planning
DEQ TMDL's		NRCS Comprehensive Nutrient Management Plans	
Name	Status	Number	Status
Beaver River	EPA Approved - 1991	6	Planned
	EPA Approved - 1998	4	Implemented
	Draft for Review		

AFO/CAFO

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms						
No. of Animals						

Confined Animal Feeding Operations - Utah CAFO Permit					
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Other
No. of Permitted Farms					
No. of Permitted Animals					

Resource Concerns – AIR, PLANTS, ANIMALS

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Feedlots	Urban	Recreation	Water	Mined	Natural Area
Air Quality	Particulate matter less than 10 micrometers in diameter (PM 10)	x			x								x			
	Particulate matter less than 2.5 micrometers in diameter (PM 2.5)	x			x								x			
	Excessive Ozone															
	Excessive Greenhouse Gas: CO2 (carbon dioxide)															
	Excessive Greenhouse Gas: N2O (nitrous oxide)															
	Excessive Greenhouse Gas: CH4 (methane)										x					
	Ammonia (NH3)										x					
	Chemical Drift															
	Objectionable Odors										x					
	Reduced Visibility	x			x								x			
	Undesirable Air Movement															
	Adverse Air Temperature															
Plant Suitability	Plants not adapted or suited			x	x	x	x	x								x
Plant Condition	Plant Condition – Productivity, Health and Vigor	x	x	x	x	x	x	x	x	x						
	Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act					x	x	x		x						x
	Threatened or Endangered Plant Species: Declining Species, Species of Concern					x	x	x		x						x
	Noxious and Invasive Plants	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Forage Quality and Palatability	x	x	x	x	x	x	x	x	x						x
	Plant Condition – Wildfire Hazard					x	x	x	x	x						x
Fish and Wildlife	Inadequate Food					x	x	x	x	x						x
	Inadequate Cover/Shelter	x	x	x	x											
	Inadequate Water					x	x	x	x	x						x
	Inadequate Space															
	Habitat Fragmentation					x	x	x	x	x						x
	Imbalance Among and Within Populations															
	Threatened and Endangered Species: Species Listed or Proposed for Listing under the Endangered Species Act	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage				x	x	x	x								
	Inadequate Shelter															
	Inadequate Stock Water				x	x	x	x								
	Stress and Mortality															

Noxious Weeds

Utah Noxious Weed List

The following weeds are officially designated and published as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture under Section 4-17-3, Utah Noxious Weed Act:

- Bermudagrass** (*cynodon dactylon*)
- Canada thistle (*cirsium arvense*)
- Diffuse knapweed (*centaurea diffusa*)
- Dyers woad (*isatis tinctoria* L.)
- Field bindweed (Wild Morning Glory) (*convolvulus arvensis*)
- Hoary cress (*cardaria draba*)
- Johnsongrass (*sorghum halepense*)
- Leafy spurge (*euphorbia esula*)
- Medusahead (*taeniatherum caput-medusae*)
- Musk thistle (*carduus nutans*)
- Perennial pepperweed (*lepidium latifolium*)
- Perennial sorghum (*sorghum halepense* L. & *sorghum alatum*)
- Purple loosestrife (*lythrum salicaria* L.)
- Quackgrass (*agropyron repens*)
- Russian knapweed (*centaurea repens*)
- Scotch thistle (*onopordum acanthium*)
- Spotted knapweed (*centaurea maculosa*)
- Squarrose knapweed (*centaurea squarrosa*)
- Yellow starthistle (*centaurea solstitialis*)

Additional noxious weeds declared by Beaver County (2003): Bull Thistle.

Wildlife

The Utah Comprehensive Wildlife Conservation Strategy (CWCS) prioritizes native animal species according to conservation need. At-risk and declining species in need of conservation were identified by examining species biology and life history, populations, distribution, and threats. The following table lists species of greatest conservation concern in the county.

AT-RISK SPECIES				
	Common Name	Group	Primary Habitat	Secondary Habitat
FEDERALLY-LISTED				
Endangered:	California Condor (experimental)	Bird	Cliff	
Threatened:	Utah Prairie-dog	Mammal	Grassland	Agriculture
	Bald Eagle	Bird	Lowland Riparian	Agriculture
Candidate:	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
Proposed:	(None)			
STATE SENSITIVE				
Conservation Agreement Species:	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bonneville Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
	Least Chub	Fish	Water - Lentic	Wetland
Species of Concern:	Big Free-tailed Bat	Mammal	Lowland Riparian	Cliff
	Burrowing Owl	Bird	High Desert Scrub	Grassland
	Dark Kangaroo Mouse	Mammal	High Desert Scrub	Shrubsteppe
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Fringed Myotis	Mammal	Northern Oak	Pinyon-Juniper
	Greater Sage-grouse	Bird	Shrubsteppe	
	Hamlin Valley Pyrg	Mollusk	Wetland	
	Kit Fox	Mammal	High Desert Scrub	
	Long-billed Curlew	Bird	Grassland	Agriculture
	Pygmy Rabbit	Mammal	Shrubsteppe	
	Short-eared Owl	Bird	Wetland	Grassland
	Three-toed Woodpecker	Bird	Sub-Alpine Conifer	Lodgepole Pine
	Townsend's Big-eared Bat	Mammal	Pinyon-Juniper	Mountain Shrub

*Definitions of habitat categories can be found in the Utah Comprehensive Wildlife Conservation Strategy.

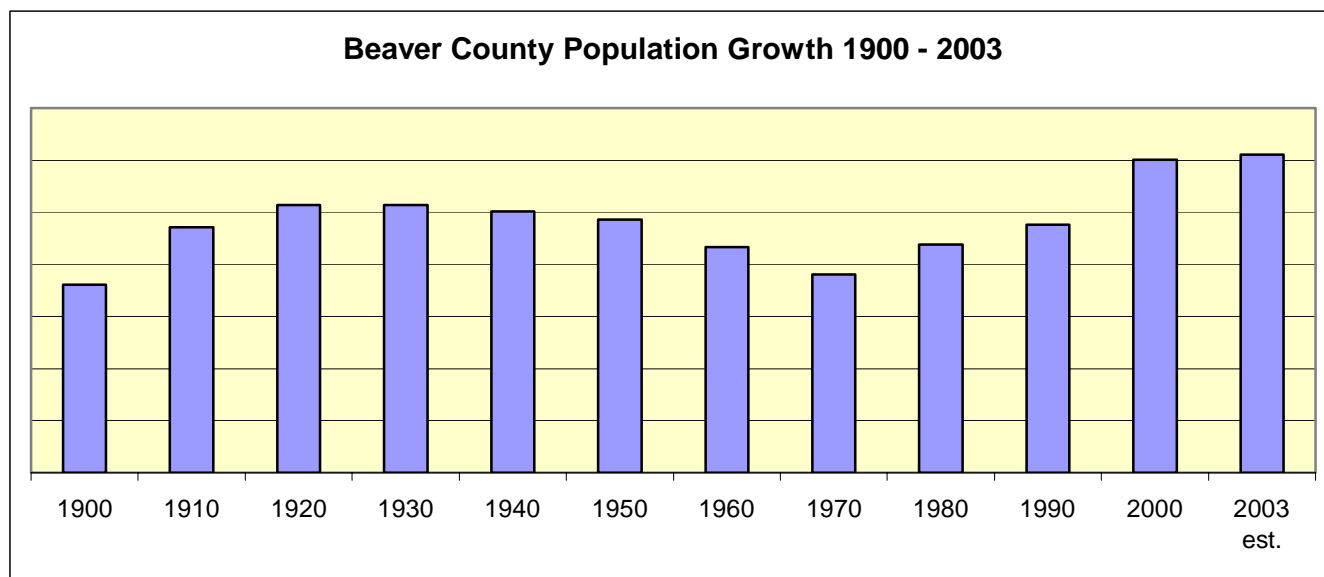
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten key habitats state-wide are (in order of priority):

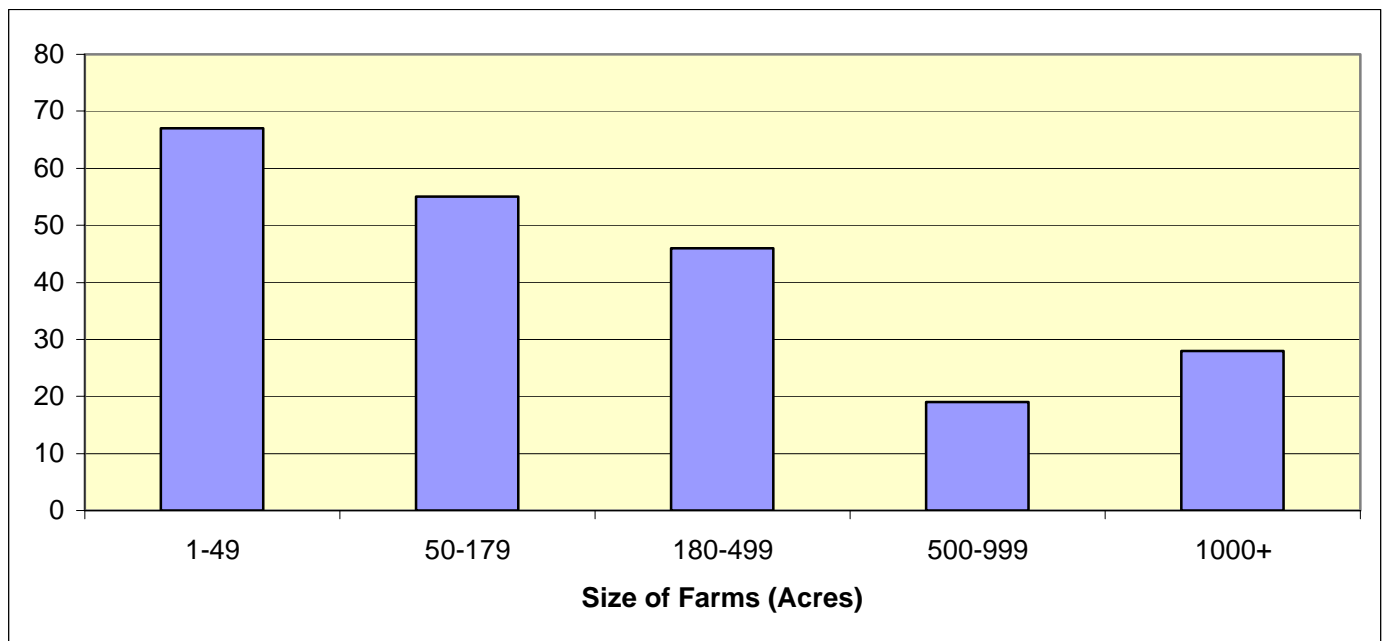
- 1) **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
- 2) **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
- 3) **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrowleaf cottonwood, willow, alder, birch and dogwood)
- 4) **Shrub steppe** (shrubland at 2,500 - 11,500 ft elevation; principal vegetation: sagebrush and perennial grasses)
- 5) **Mountain Shrub** (deciduous shrubland at 3,300 - 9,800 ft elevation; principal vegetation: mountain mahogany, cliff rose, bitterbrush, serviceberry, etc.)
- 6) **Water - Lotic** (open water; streams and rivers)
- 7) **Wet Meadow** (water saturated meadows at 3,300 - 9,800 ft elevation; principal vegetation: sedges, rushes, grasses and forbs)
- 8) **Grassland** (perennial and annual grasslands or herbaceous dry meadows at 2,200 - 9,000 ft elevation)
- 9) **Water - Lentic** (open water; lakes and reservoirs)
- 10) **Aspen** (deciduous aspen forest at 5,600 - 10,500 ft elevation)

Resource Concerns – SOCIAL AND ECONOMIC

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Feedlots	Urban	Recreation	Water	Mined	Natural Area
Social and Economic	Non-Traditional Landowners and Tenants															
	Urban Encroachment on Agricultural Land															
	Marketing of Resource Products															
	Innovation Needs															
	Non-Traditional Land Uses															
	Population Demographics, Changes and Trends															
	Special Considerations for Land Mangement (High State and Federal Percentage)				X	X		X								X
	Active Resource Groups (CRMs, etc)															
	Full Time vs Part Time Agricultural Communities	X	X	X	X	X	X									
	Size of Operating Units															
	Land Removed from Production through Easements															
	Land Removed from Production through USDA Programs	X	X													
Other																

Census and Social Data





Number of Farms: 256

Number of Operators in 1997:

- Full-Time Operators: 158
- Part-Time Operators: 98

Public Survey/Questionnaire Results:

Not compiled as of Aug. 2005

Footnotes / Bibliography

1. General information about Beaver County obtained from the Beaver River Watershed CRMP Document.
2. Information and land ownership maps made using GIS shapefiles from the Automated Geographical Reference Center (AGRC), a Utah State Division of Information Technology. Website: <http://agrc.utah.gov/>
3. Land Use/Land Cover layer developed by the Utah Department of Water Resources by a polygon coverage containing water-related land-use for all 2003 agricultural areas of the state of Utah. Compiled from initial USGS 7.5 minute Digital Raster Graphic waterbodies, individual farming fields and associated areas are digitized from Digital Orthophotos, then surveyed for their land use, crop type, irrigation method, and associated attributes.
4. Prime and Unique farmlands derived from SURGO Soils Survey UT607 and Soil Data Viewer. Definitions of Prime and Unique farmlands from U.S. Geological Survey, http://water.usgs.gov/eap/env_guide/farmland.html#HDR5
5. Land Capability Classes derived from SURGO Soils Survey UT607 and Soil Data Viewer.
6. Tons of Soil Loss by Water Erosion data gathered from National Resource Inventory (NRI) data. Estimates from the 1997 NRI Database (revised December 2000) replace all previous reports and estimates. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is due to changes in statistical estimation protocols, and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
7. Precipitation data was developed by the Oregon Climate Service at Oregon State University using average monthly or annual precipitation from 1960 to 1990. Publication date: 1998. Data was downloaded from the Resource Data Gateway, <http://dgateway-wb01.lighthouse.itc.nrcs.usda.gov/lighthouse>
8. Irrigated Adjudicated Water Rights obtained from the Utah Division of Water Rights.
9. Stream Flow data from USGS data information for site 10234500, Beaver River near Beaver.
10. Stream length data obtained from the Beaver Watershed Coordinated Resource Management Plan and from AGRC and 303d waters from the Utah Department of Environmental Quality.
11. Watershed information from the Beaver Watershed Coordinated Resource Management Plan Document.
12. The 2003 noxious weed list was obtained from the State of Utah Department of Food and Agriculture. For more information contact Steve Burningham, 801-538-7181 or visit their website at http://ag.utah.gov/plantind/noxious_weeds.html
13. Wildlife information derived from the Utah Division of Wildlife Resources' Comprehensive Wildlife Conservation Strategy (CWCS) (<http://wildlife.utah.gov/cwcs/>) and from the Utah Conservation Data Center (<http://dwrcdc.nr.utah.gov/ucdc/>).

14. County population data from the Map Stats from Fed Stats.

<http://www.fedstats.gov/qf/states/49/49021.html>

15. Farm information obtained from the National Agricultural Statistics Service, 2002 Census of Agriculture.

<http://www.nass.usda.gov/census/census02/volume1/index2.htm>